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TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No.
60,680-891

O I P E
IAP79
APR 0 6 2006
PATENT & TRADEMARK OFFICE

In Re Application Of: **CHENG**

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
10/679,260	10/07/2003	HOOK	26127	3754	3121

Invention: **A HOSE FOR CONVEYING FLUIDS CONTAINING HYDROGEN**

COMMISSIONER FOR PATENTS:

Transmitted herewith is the Appeal Brief in this application, with respect to the Notice of Appeal filed on:
02/06/2006

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Michelle R. Osinski
Signature

Dated: **04/06/2006**

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Application No.	Filing Date	Examiner	Customer No.	Group Art Unit
10/679,260	**10/07/2003**	**HOOK**	**26127**	**3754**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.: 10/679,260
In re: Cheng
Art Unit: 3754
Filed: 10/07/2003
Examiner: Hook, James F.
For: A HOSE FOR CONVEYING FLUIDS CONTAINING HYDROGEN
Docket No.: 60,680-891
Conf. No.: 3121

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37

Dear Sir:

Appellants submit the following Appeal Brief pursuant to 37 C.F.R. § 41.37 for consideration by the Board of Patent Appeals and Interferences. Please charge the cost of filing the opening brief, namely $500.00, as required under 37 C.F.R. § 1.17(c), to deposit account 04-2223. Further, please charge any additional fees required or credit any overpayment to the same deposit account.

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Mary F. Peltier

Mary F. Peltier

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I. REAL PARTY IN INTEREST

Nobel Plastiques, S.A. is the assignee of all rights in this invention and is the real party in interest.

II. RELATED APPEALS AND INTERFERENCES

Neither Appellants, Appellants' representatives, nor Nobel Plastiques, S.A. (the assignee) knows of any appeal, interference or judicial proceeding that may be related to, that will directly affect or that will be directly affected by or have a bearing on the Board's decision in the present appeal.

III. STATUS OF CLAIMS

Claims 1-12 are presently pending in this application. Claims 1-6 have been finally rejected, and the rejection of claims 1-6 is being appealed. Claims 7-12 have been withdrawn from consideration by the Examiner in accordance with a restriction requirement and alleged constructive election by Appellants, and the Examiner has not considered claims 7-12. A Petition for Withdrawal of Restriction Requirement was filed concurrently with the Notice of Appeal in accordance with 37 C.F.R. § 1.144 and is currently pending.

IV. STATUS OF AMENDMENTS

No amendment has been filed subsequent to the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

This invention relates to a hose for conveying fluids (1—Fig. 1) and, in particular, to a hose for conveying fluids containing hydrogen (1—Fig. 1).[1] The hose (1—Fig. 1) is provided to transport hydrogen, or a mixture of gases containing hydrogen following reformation of a hydrocarbon, to a fuel cell onboard a motor vehicle in order to produce electricity to power the motor vehicle.[2] As set forth in independent claim 1, the hose (1—Fig. 1) comprises three hydrogen barrier layers which are from the inside to the outside (1) a layer comprising a fluorine-based thermoplastic material (2—Fig. 1); (2) a layer comprising a vinyl ethylene alcohol (3—Fig. 1); and (3) a layer comprising a polybutylene terephthalate (4—Fig. 1).[3]

The fluorine-based thermoplastic material layer (2—Fig. 1) serves as a hydrogen barrier.[4] In an exemplary embodiment, the fluorine-based thermoplastic material layer (2—Fig. 1) may comprise polyvinylidene fluoride (PVDF), ethylene fluorinated ethylene propylene (EFEP), or ethylene tetrafluoroethylene (ETFE).[5]

The vinyl ethylene alcohol layer (3—Fig. 1) serves as a hydrogen barrier and limits the permeability of oxygen through the hose.[6]

The polybutylene terephthalate layer (4—Fig. 1) serves as a hydrogen barrier.[7] The layer also services as an outer protective layer.[8]

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[1] *See* Specification at page 1, lines 2-3.

[2] *See* Specification at page 1, lines 15-34 and page 2, lines 3-4.

[3] *See* Specification at page 2, lines 10-14 and page 3, lines 8-15.

[4] *See* Specification at page 2, lines 19-20.

[5] *See* Specification at page 3, lines 9-12.

[6] *See* Specification at page 2, lines 22-27.

Adhesive layers (5, 6—Fig. 1) may be disposed between the any two of layers (2, 3, 4—Fig. 1).[9] The adhesive layers (5, 6—Fig. 1) may comprise adhesives presenting properties of adhesion with the materials comprising the layers (2, 3, 4—Fig. 1).[10]

The inventive hose (1—Fig. 1) is advantageous because it is lighter in weight, more flexible, and less expensive than traditional steel pipes.[11] Furthermore, the inventive hose is a better hydrogen and oxygen barrier than traditional steel pipes.[12]

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. The rejection of claims 1, 3, and 4 as unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,240,970 ("Ostrander et al.") in view of U.S. Patent Publication No. U.S. 2003/0087053-A1 ("Fukushi") and U.S. Patent No. 5,937,911 ("Kodama et al.").

2. The rejection of claim 2 as unpatentable under 35 U.S.C. § 103(a) over Ostrander et al. in view of Fukushi and Kodama et al. and further in view of U.S. Patent No. 6,776,195 ("Blasko et al.").

3. The rejection of claims 5-6 as unpatentable under 35 U.S.C. § 103(a) over Ostrander et al. in view of Fukushi and Kodama et al. and further in view of U.S. Patent No. 6,089,278 ("Nishino et al.").

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[7] *See* Specification at page 2, lines 28-29.

[8] *See* Specification at page 2, lines 30-31.

[9] *See* Specification at page 3, lines 16-21.

[10] *See* Specification at page 3, lines 31-34.

[11] *See* Specification at page 2, lines 15-17 and page 3, lines 23-24.

[12] *See* Specification at page 2, lines 17-18 and page 3, lines 24-26.

VII. ARGUMENTS

Claims 1, 3, and 4 stand rejected as unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,240,970 ("Ostrander et al.") in view of U.S. Patent Publication No. U.S. 2003/0087053-A1 ("Fukushi") and U.S. Patent No. 5,937,911 ("Kodama et al."). Claim 2 stands rejected as unpatentable under 35 U.S.C. § 103(a) over Ostrander et al. in view of Fukushi and Kodama et al. and further in view of U.S. Patent No. 6,776,195 ("Blasko et al."). Claims 5-6 stand rejected as unpatentable under 35 U.S.C. § 103(a) over Ostrander et al. in view of Fukushi and Kodama et al. and further in view of U.S. Patent No. 6,089,278 ("Nishino et al."). Appellants respectfully submit that the rejections of claims 1-6 under 35 U.S.C. § 103(a) are improper because there is no suggestion or motivation to combine the teachings of Ostrander et al., Fukushi, and Kodama et al.

"Patent examiners carry the responsibility of making sure that the standard of patentability enunciated by the Supreme Court and by the Congress is applied in each and every case." MPEP § 2141 (emphasis in original).

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations.

MPEP § 2143. Appellants submit that there is no suggestion or motivation to combine the teachings of Ostrander et al., Fukushi, and Kodama et al.

Independent claim 1 recites: "A hydrogen feeding hose for a fuel cell, the hose comprising three hydrogen barrier layers which are from the inside towards the outside: a layer comprising a fluorine-based thermoplastic material; a layer comprising a vinyl ethylene alcohol; and a layer comprising a polybutylene terephthalate." (emphasis added).

Ostrander et al. discloses several embodiments of a multilayer hose. In one or more embodiments, an inner layer 14 of the hose is made from a fluoroplastic material. Col. 6, lines 47-55. In one or more embodiments, an intermediate layer 16 of the hose may be made from EVOH. Col 10, lines 28-43. The Examiner acknowledges, however, that Ostrander et al. fails to disclose: (1) a hose in which an intermediate EVOH layer is outside a fluorine-based thermoplastic layer (rather, the Examiner notes that the EVOH layer is only disclosed in embodiments where the inner layer 14 is made from polyamides); and (2) a hose having an outer layer made from PBT (rather, the outer layer 18 is made from polyamides).

With respect to the use of an intermediate EVOH layer outside a fluorine-based thermoplastic layer, the Examiner cites Fukushi and argues that it would have been obvious to modify the Ostrander et al. embodiments having a flurothermoplastic inner layer to include an EVOH intermediate layer "to provide further barrier properties and protect against the permeation of gases." Office Action mailed October 6, 2005, page 3.

The tubing of Ostrander et al. already serves to prevent or reduce the permeation of hydrocarbons therethrough, so there is no suggestion or motivation to change from an existing structure in Ostrander et al. that already accomplishes the function. Further, the Examiner acknowledges that Ostrander et al. discloses the use of EVOH in combination with a polyamide inner layer, but does not disclose the use of EVOH in combination with fluorine based thermoplastics. Accordingly, while Ostrander et al. discloses several types of materials and several different combinations for the various layers of the tubing, Ostrander et al. never contemplates the use of fluorinated thermoplastics in combination with EVOH, and instead, the combination of fluorinated thermoplastics with EVOH is implicitly dismissed in Ostrander et al. Under MPEP § 2145, a prior art reference that teaches away from the claimed invention is a significant factor to be considered in determining obviousness. By implicitly dismissing the combination of fluorinated thermoplastics with EVOH, Ostrander et al. teaches away from the inventive combination. The Examiner has indicated that "[e]xclusion . . . is not considered explicit teaching." Office Action mailed April 20, 2005, page 6. However, Appellants submit that the failure to acknowledge the combination of fluorine-based thermoplastics in connection with EVOH when EVOH is specifically addressed in connection with layers of materials other than fluorine-based thermoplastics is a strong teaching away of these materials in combination.

With respect to the failure of Ostrander et al. to teach a hose with an outer PBT layer, the Examiner cites Kodama et al. and argues that it would have been obvious to further modify Ostrander et al. to include an outer layer made from PBT because the polyamides of Ostrander's hose and PBT "are equivalent materials used interchangeably, and where PBT would have certain beneficial qualities over the polyamide for use in specific environments and would provide different properties for use in different environments to make the hose more useful for a wider range or [sic] applications." Office Action mailed October 6, 2005, page 4. Appellants respectfully disagree.

The Examiner's statements regarding interchangeability do not identify a sufficient suggestion or motivation in the references for modifying Ostrander et al. to include a PBT layer. "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." MPEP § 2143.01 (citing *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990)). "When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the examiner to explain why the combination of the teachings is proper." MPEP § 2142 (citing *Ex Parte Skinner*, 2 USPQ2d 1788 (Bd. Pat. App. & Inter. 1986)). Although the Examiner states generally that PBT has "certain beneficial qualities over the polyamide for use in specific environments," the Examiner has failed to identify any of those qualities or state why they would lead one of ordinary skill in the art to modify Ostrander et al. The Examiner attempts to identify these beneficial qualities by asserting that "some plastics such as PBT are more resistant to certain external chemical attacks than polyamides," but continues to fail to show some suggestion or motivation to modify the multi-layer hose of Ostrander et al. to substitute PBT for polyamides. Office Action mailed January 31, 2006, page 2.

Second, "[i]n order to rely on equivalence as a rationale supporting an obviousness rejection, the equivalency must be recognized in the prior art . . . and cannot be based on applicant's disclosure or the mere fact that the components at issue are functional or mechanical equivalents." MPEP § 2144.06. The Examiner has failed to provide evidence that the equivalency is recognized in the prior art. Instead, the Examiner has merely asserted that the "knowledge [is] generally available in the art" and that "references teaching that the different materials are interchangeable is not only considered to be a suggestion in the art to combine, but also sets forth what is known to one skilled in the art and would thereby be knowledge generally available to one skilled in the art." Office Action mailed January 31, 2006, page 2.

Finally, Kodama et al. at most shows a layer of PBT outside of a single layer of a fluorinated thermoplastic (e.g., PVDF or ETFE). It does not show a PBT layer outside of a multi-layer hose comprising from the inside toward the outside a layer comprising a fluorine-based thermoplastic and a layer comprising a vinyl ethylene alcohol (EVOH). Accordingly, there is no suggestion or motivation in the prior art to modify a layer of polyamides in a multi-layer hose including an EVOH layer based on a reference that at most shows a PBT layer outside of a single layer of fluorinated thermoplastic material. The Examiner has asserted that "[i]t is immaterial whether Kodama teaches the combination of EVOH and PBT, when such is not the manner in which the examiner is modifying the base reference, not is it the reasoning used by the examiner to provide motivation." Office Action mailed April 20, 2005, page 7. However, Appellants respectfully submit that there remains no motivation or suggestion to use PBT outside of a multi-layer (comprising a fluorinated thermoplastic layer and EVOH layer from inside toward the outside) tube structure.

Because there is no suggestion or motivation to combine the teachings of Ostrander et al., Fukushi, and Kodama et al., Appellants respectfully submit that the rejection of claims 1-6 under 35 U.S.C. § 103(a) is improper. Accordingly, Appellants request that the rejections be overturned.

Respectfully submitted,
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VIII. CLAIMS APPENDIX

1. (Previously Presented) A hydrogen feeding hose for a fuel cell, the hose comprising three hydrogen barrier layers which are from the inside towards the outside:

a layer comprising a fluorine-based thermoplastic material;

a layer comprising a vinyl ethylene alcohol; and

a layer comprising a polybutylene terephthalate.

2. (Original) A hose according to claim 1, wherein the fluorine-based thermoplastic material is ethylene fluorinated ethylene propylene.

3. (Original) A hose according to claim 1, wherein the fluorine-based thermoplastic material is an ethylene tetrafluoroethylene.

4. (Original) A hose according to claim 1, wherein the fluorine-based thermoplastic material is a polyvinylidene fluoride.

5. (Original) A hose according to claim 1, wherein at least two of the layers are bonded together by an adhesive layer.

6. (Original) A hose according to claim 5, wherein the adhesive is based on polyurethane.

IX. EVIDENCE APPENDIX

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X. RELATED PROCEEDINGS APPENDIX

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